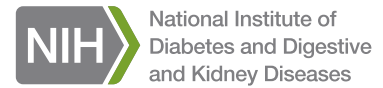


Dieting and Gallstones

U.S. Department of Health
and Human Services



WIN *Weight-control Information Network*

Introduction

According to estimates, as many as 20 million Americans have gallstones—solid deposits that may form in the gallbladder. Most people with gallstones do not know that they have them and experience no symptoms (signs that a disease is present). Others may have symptoms like pain and nausea in the abdomen (the part of the body that holds the stomach, intestines, and other organs), often after meals. In some cases, gallstones may cause serious health problems that require the gallbladder to be removed.

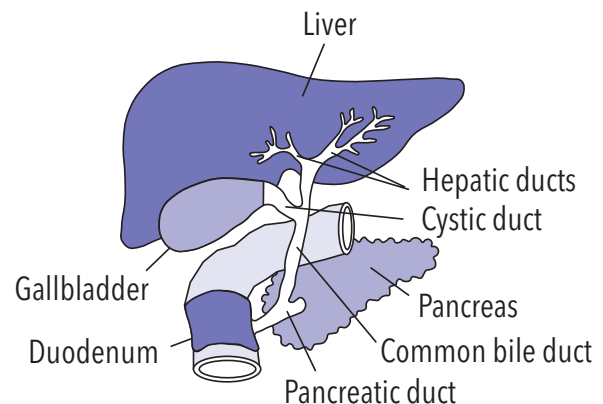
Although it is not clear what causes gallstones, many factors may increase your chances of having problems related to gallstones. These factors include having too much body fat, especially around your waist, and losing weight very quickly. This fact sheet will tell you more about gallstones, how they are linked to obesity and dieting, and how you may help prevent this very common health problem.

What are gallstones?

Gallstones are hard crystals that may form in the gallbladder, a small pear-shaped organ located on the right side of the abdomen, under the liver. The gallbladder helps the body digest foods by storing and releasing bile into the small intestine. Bile, a liquid made in the liver, has bile salts and other substances that help break down fats so they can be digested.

Gallstones form when substances in the bile join together to form crystals. These crystals lodge in

the inner lining of the gallbladder, growing into gallstones over time. Gallstones can vary from the size of little pebbles to as large as golf balls. The gallbladder may have one or more gallstones of different sizes.



In the United States, most gallstones are made of cholesterol, a type of fat that is created in the liver and is also found in foods from animal sources, such as dairy products, eggs, meat, and poultry. Cholesterol gallstones are yellow in color. Other types of gallstones, called pigment stones, are made up of other substances in the bile.

How can I tell if I have gallstones?

Most people who have gallstones have no signs. These gallstones are called “silent gallstones” and do not need to be treated.

In some people, a gallstone may become stuck in the narrow canal, or duct, that carries bile from the gallbladder to the small intestine. The blockage may cause the gallbladder, ducts, or

more rarely, the liver or pancreas to become inflamed.

Signs of gallstones or a gallstone attack include these:

- severe pain in the upper-right side of the abdomen that starts suddenly and lasts from 30 minutes to many hours
- pain under the right shoulder or in the right shoulder blade
- indigestion after eating foods high in fat or protein, including desserts and fried foods

Gallstone attacks often take place during the night.

Symptoms of a serious gallbladder attack

You may want to seek help right away if you have **any** of these symptoms:

- abdominal pain that lasts more than 5 hours
- clay-colored stools
- fever or chills
- nausea and vomiting
- yellowish color of the skin or of the whites of the eyes

What causes gallstones?

What causes gallstones is not clear. Most gallstones are made up of cholesterol, a type of fat made in the liver and obtained from some foods.

Gallstones may form when:

- the liver releases too much cholesterol into the bile
- there are not enough bile salts in the bile to dissolve the cholesterol

- there are other substances in the bile that cause the cholesterol to form crystals
- the gallbladder does not empty completely or often enough, which concentrates the bile

Gallstones are more common among women and adults ages 40 and older than among other groups. The female sex hormone estrogen may help explain why gallstones are more common among women than among men. Estrogen may increase the amount of cholesterol in the bile and decrease gallbladder movement, which may lead to gallstones.

Other factors that may increase your chances of developing gallstones are these:

- diabetes
- family history of gallstones
- high triglycerides (a type of fat in the blood)
- lack of physical activity
- low HDL (good) cholesterol
- obesity, particularly a large waist size
- pregnancy
- rapid weight loss

Some drugs may also increase your chances of getting gallstones. Among them are drugs that have estrogen, such as birth control pills and hormone replacement therapy (medicine that may be given to some women to address problems related to menopause). Taking drugs that lower cholesterol levels in the blood may also make it more likely that you will develop gallstones, as some of these drugs may make the liver release more cholesterol into the bile.

How may obesity increase my chances of getting gallstones?

Being overweight or obese may increase your chances of having gallstones, especially if you are female. Researchers have found that people who are obese may produce high levels of cholesterol.

This may produce bile having more cholesterol than it can dissolve. When this happens, gallstones can form. People who are obese may also have large gallbladders that do not work well. Some studies have shown that men and women who carry large amounts of fat around their waist may be more likely to develop gallstones than those who carry fat around their hips and thighs.

Although rapid weight loss may increase your chances of developing gallstones (see the next section), obesity may be a bigger problem. In addition to gallstones, obesity is linked to many serious health problems, including diabetes, heart disease, stroke, and certain types of cancer.

For those who are overweight or obese, even a small weight loss of 10 percent of body weight over a period of 6 months can improve health. In addition, weight loss may bring other benefits such as better mood, increased energy, and positive self-image.

How may rapid weight loss increase my chances of getting gallstones?

Losing weight very quickly may increase your chances of forming gallstones. If you have silent gallstones, you may also be more likely to develop symptoms. People who lose more than 3 pounds per week may have a greater chance of getting gallstones than those who lose weight more slowly.

Some ways of treating obesity, such as weight-loss surgery and very low-calorie diets (VLCDs), may increase your chances of developing gallstones by promoting rapid weight loss.

Weight-loss surgery is an operation on the stomach and/or intestines to help people lose weight by limiting food intake and/or by affecting how food is digested.

A **very low-calorie diet** is a very restrictive diet that uses a commercially prepared formula providing about 800 calories per day. A health care provider closely supervises these types of diets.

Is weight cycling a problem?

Weight cycling, or losing and regaining weight repeatedly, may also lead to gallstones. The more weight you lose and regain during a cycle, the greater your chances of developing gallstones.

When trying to lose weight on your own, stay away from “crash diets” that promise to help you drop the pounds quickly. Aim for losing weight at a slower pace and keeping it off over time.

Several factors may increase your chances of having problems with gallstones after weight-loss surgery or a VLCD. They include:

- existing gallstones before your surgery or VLCD, especially if they are causing symptoms
- a large amount of excess weight before the surgery or VLCD
- very rapid weight loss after the surgery or VLCD

Your chances of developing gallstones may vary by type of treatment. Diets or surgeries that cause very rapid weight loss may be more likely to lead to gallstone problems than diets or surgeries that lead to slower weight loss.

If you are starting a VLCD or having weight-loss surgery, talk to your health care provider about how to reduce your chances of getting gallstones.

How may I safely lose weight and reduce my chances of getting gallstones?

Losing weight at a slow pace may make it less likely that you will develop gallstones. Depending on your starting weight, experts recommend losing about 1/2 to 2 pounds per week.

When making healthy food choices to help you lose weight, you can choose food that may also lower your chances of developing gallstones.

Experts recommend the following:

- Eat more foods high in fiber, like brown rice, oats, and whole wheat bread.
- Eat fewer refined grains and less sugar.
- Eat healthy fats, like fish oil and olive oil, to help your gallbladder contract and empty on a regular basis.



Regular physical activity, which may improve your health, is also related to a reduced chance of developing gallstones. To lose weight or prevent weight gain, aim for 300 minutes (5 hours) of moderately intense aerobic activity each week. Aerobic activity uses your large muscles (back, chest, and legs), increases your heart rate, and may make you breathe harder. To sustain weight loss, you may need at least 60 to 90 minutes a day.

If you are thinking about starting an eating and physical activity plan to lose weight, talk with your health care provider first. Together, you can discuss various eating and physical activity programs, your medical history, and the benefits and risks of losing weight, including the chances of developing gallstones.

How are gallstones treated?

Silent gallstones are usually left alone and sometimes disappear on their own. Gallstones that are causing symptoms are usually treated.

The most common way to treat gallstones that are causing symptoms is to remove the organ. This operation is called a cholecystectomy. In most cases, surgeons can use a laparoscope, a thin, lighted tube that shows them what is inside your abdomen. The surgery is done while you are under general anesthesia (asleep and pain-free). The surgeon makes small cuts in your abdomen to insert the surgical tools and take out the gallbladder.

Most people go home on the same day or the day after this surgery. If there were problems during your surgery, or if you have bleeding, a lot of pain, or a fever, you may need to stay in the hospital longer. In general, you can expect to go home once you are able to eat and drink without pain and are able to walk without help. It may take about a week for you to fully recover.

If surgery is not a good option for you, your health care provider may give you drugs to dissolve your gallstones. However, this approach may take months or years to dissolve the gallstones. In addition, you may develop gallstones again.

Researchers are looking into other treatments for gallstone problems, including drugs that affect how your body uses cholesterol. Your health care provider can help determine which option is best for you.

Research

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports a broad range of basic and clinical obesity research. More information about obesity research is available at <http://www.obesityresearch.nih.gov>.

Clinical trials are research studies involving people. Clinical trials look at safe and effective new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. To learn more about clinical trials, why they matter, and how to participate, visit the NIH Clinical Research Trials and You website at <http://www.nih.gov/health/clinicaltrials>. For information about current studies, visit <http://www.ClinicalTrials.gov>.

Resources

Additional Reading from the Weight-control Information Network

The following publications are available online at <http://www.win.niddk.nih.gov/publications> and also by calling WIN toll-free at 1-877-946-4627:

- **Bariatric Surgery for Severe Obesity** explains how this operation on the stomach and/or intestines helps patients with extreme obesity to lose weight. Patients may use this fact sheet to talk about this option with their health care providers. This fact sheet explains which patients might choose this option and describes the different types of bariatric surgery (available online at <http://www.win.niddk.nih.gov/publications/gastric.htm>).
- **Prescription Medications for the Treatment of Obesity** discusses weight-loss medication and how it should always be combined with a plan to consume healthy foods and beverages and engage in regular physical activity (available online at <http://www.win.niddk.nih.gov/publications/prescription.htm>).
- **Very Low-calorie Diets** explains this monitored weight-loss option and helps health care professionals decide which patients might benefit from it (available online at http://www.win.niddk.nih.gov/publications/low_calorie.htm).

Additional Resources

- **2008 Physical Activity Guidelines for Americans** <http://www.health.gov/paguidelines>
- **Dietary Guidelines for Americans, 2010** <http://www.health.gov/DietaryGuidelines>
- **MyPlate** <http://www.choosemyplate.gov>
- **National Digestive Diseases Information Clearinghouse** <http://www.digestive.niddk.nih.gov>
- **Understanding Gallstones** American Gastroenterological Association http://www.gastro.org/patient-center/digestive-conditions/AGAPatientBrochure_Gallstones.pdf

Inclusion of resources is for information only and does not imply endorsement by NIDDK or WIN.

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The Weight-control Information Network (WIN) is a national information service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), part of the National Institutes of Health (NIH). WIN provides the general public, health professionals, and the media with science-based, up-to-date, culturally relevant materials and tips. Topics include how to consume healthy foods and beverages, barriers to physical activity, portion control, and eating and physical activity myths.

Publications produced by WIN are carefully reviewed by both NIDDK scientists and outside experts. This fact sheet was also reviewed by James Everhart, M.D., M.P.H., Chief, Epidemiology and Clinical Trials Branch, NIDDK; Van S. Hubbard, M.D., Ph.D., Director, NIH Division of Nutrition Research Coordination; and Susan Z. Yanovski, M.D., Co-Director, Office of Obesity Research, NIDDK.

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